CLAIMS:

Cancel the claims of record (1 to 45) and substitute new claims 46 to 80 as follows:

46. A smart hard-disk drive (sHDD), comprising:

a head-disk assembly for storing data for at least two types of multimedia devices;

an interface block for connecting said sHDD to any one of said at least two types of multimedia devices;

communication means for directly transferring data between said head-disk assembly and a selected one of said at least two types of multimedia devices through said interface block.

47. The sHDD according to claim 46, wherein said communication means further comprises:

download means for directly transferring data from a first one of said multimedia devices to said head-disk assembly through said interface block;

upload means for directly transferring data from said head-disk assembly to a second one of said multimedia devices through said interface block.

48. The sHDD according to claim 46, wherein said communication means further comprises:

download circuitry for directly transferring data from a first one of said multimedia devices to said head-disk assembly through said interface block;

upload circuitry for directly transferring data from said head-disk assembly to a second one of said multimedia devices through said interface block.

49. The sHDD according to claim 46, wherein said head-disk assembly comprises:

at least a first data file for a first one of said multimedia devices;

at least a second data file for a second one of said multimedia devices.

50. The sHDD according to claim 46, wherein said communication means further comprises:

download means for directly transferring a first data file from a first one of said multimedia devices to said head-disk assembly through said interface block;

upload means for directly transferring a second data file from said head-disk assembly to a second one of said multimedia devices through said interface block.

51. The sHDD according to claim 46, wherein said two types of multimedia devices are selected from a group of device types consisting of digital recording device and digital content player.

52. The sHDD according to claim 46, wherein said two types of multimedia devices are selected from a group of device types consisting of digital voice recorder, digital still camera, digital camcorder, digital audio player, and digital video player.

53. The sHDD according to claim 46, wherein said interface block has a serial data interface.

54. The sHDD according to claim 53, wherein said serial data interface is selected from a group of interfaces consisting of USB and IEEE 1394.

55. The sHDD according to claim 46, wherein said communication means further comprises a host controller for controlling direct data transfer between said sHDD and said selected one of said multimedia devices.

56. The sHDD according to claim 55, wherein said host controller complies with USB host or USB on-the-go (OTG) standards.

57. The sHDD according to claim 46, wherein:

said head-disk assembly further comprises a servo block and a read-channel block;

said interface block further comprises an interface-controller block;

said communication means further comprises a data-processing block;

said sHDD further comprises a motherboard;

said servo block, said read-channel block, said interface-controller block and said data-processing block are located on said motherboard.

58. The sHDD according to claim 46, further comprising no screen.

59. The sHDD according to claim 46, further comprising a battery.

60. The sHDD according to claim 46, wherein said head-disk assembly is housed in an "L"-shaped shell.

61. The sHDD according to claim 46, wherein data files for different types of said multimedia devices are placed into different directories in said head-disk assembly.

62. A smart hard-disk drive (sHDD), comprising:

a head-disk assembly for storing data for at least a multimedia device with at least a recording function;

an interface block for connecting said sHDD to said multimedia device;

download means for directly transferring data from said multimedia device to said head-disk assembly through said interface block.

63. The sHDD according to claim 62, wherein said multimedia device is selected from a group of devices consisting of digital voice recorder, digital camera and digital camcorder.

64. The sHDD according to claim 62, wherein said interface block has a serial data interface.

65. The sHDD according to claim 62, further comprising a host controller for controlling data transfer between said sHDD and said multimedia device.

66. The sHDD according to claim 62, further comprising:

said head-disk assembly further comprises a servo block and a read-channel block;

said interface block further comprises an interface-controller block;

said download means further comprises a data-processing block;

said sHDD further comprises a motherboard;

said servo block, said read-channel block, said interface-controller block and said data-processing block are located on said motherboard.

67. A smart hard-disk drive (sHDD), comprising:

a head-disk assembly for storing data for at least a multimedia device with at least a playing function;

an interface block for connecting said sHDD to said multimedia device;

upload means for directly transferring data from said head-disk assembly to said multimedia device through said interface block.

68. The sHDD according to claim 67, wherein said multimedia device is selected from a group of devices consisting of digital audio player, and digital video player.

69. The sHDD according to claim 67, wherein said interface block has a serial data interface.

70. The sHDD according to claim 67, further comprising a host controller for controlling data transfer between said sHDD and said multimedia device.

71. The sHDD according to claim 67, further comprising:

said head-disk assembly further comprises a servo block and a read-channel block;

said interface block further comprises an interface-controller block;

said upload means further comprises a data-processing block;

said sHDD further comprises a motherboard;

said servo block, said read-channel block, said interface-controller block and said data-processing block are located on said motherboard.

72. An HDD-based digital video-recording device, comprising:

an image-sensing block and an image-processing block for capturing images and generating digital image data;

an interface block for connecting said video-recording device to a removable hard-disk drive;

a holding structure for holding said removable hard-disk drive;

communication means for transferring said digital image data to said removable hard-disk drive through said interface block but not through a videotape or an optical disc.

73. The HDD-based digital video-recording device according to claim 72, further comprising a DRAM-based buffer memory.

74. A data-exchange host apparatus, comprising:

a first interface for connecting said data-exchange host apparatus to a hard-disk drive;

a second interface for connecting said data-exchange host apparatus to a multimedia device;

communication means for transferring data between said hard-disk drive and said multimedia device through said first and second interfaces.

75. The data-exchange host apparatus according to claim 74, wherein said first and second interfaces are serial data interface.

76. The data-exchange host apparatus according to claim 75, wherein said serial data interface is selected from a group of interfaces consisting of USB and IEEE 1394.

77. The data-exchange host apparatus according to claim 74, wherein said communication means comprises a host controller for controlling data transfer between said hard-disk drive and said multimedia device.

78. An HDD-based portable electronic system, comprising:

a head-disk assembly, said head-disk assembly further comprising at least a disk platter, at least a head, and a rotor;

a servo block and a read-channel block for said head-disk assembly;

a system processing block and a system memory block;

a motherboard, wherein said servo block, said read-channel block, said system processing block and system memory block are located on said motherboard.

79. The HDD-based portable electronic system according to claim 78, further comprising only one shell with mechanical strength between said disk platter and at least one external surface of said portable electronics system.

80. The HDD-based portable electronic system according to claim 78, wherein said portable electronic system is an HDD-based personal digital assistant (PDA).